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**REMARKS**

Applicant respectfully requests reconsideration of the present application in view of the reasons that follow.

Claims 1-4, 6-19, 22, and 24-27 remain pending in this application. A detailed listing of all claims that are, or were, in the application, irrespective of whether the claim(s) remain under examination in the application, is presented, with an appropriate status identifier for each.

**Claim Rejections – 35 U.S.C. § 103(a)****a. Rejection of claims 1-2, 4, and 6-9 based on Chen in view of Baur et al.**

In section 3 of the Office Action, claims 1-2, 4, and 6-9 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Chen (U.S. Patent No. 5,982,092) in view of Baur et al. (U.S. Patent No. 4,142,781).

Applicants respectfully submit that the Office Action fails to establish a *prima facie* case of obviousness with regard to claim 17 for at least two reasons. First, the cited combination of Chen in view of Baur et al. fails to teach, disclose, or suggest all of the elements of claim 1 as combined therein. Second, there is no suggestion or motivation to modify Chen or to otherwise combine the teachings of Chen and Baur et al. to arrive at the subject matter of claim 1.

As to the first reason cited above, claim 1 recites “a reflective layer having phosphorescent coatings in a substrate.” The cited combination of Chen in view of Baur et al. does not teach, disclose, or suggest “a reflective layer having phosphorescent coatings in a substrate” as included in the combination of elements of claim 1. The Office Action states that “Regarding claim 1, Chen ('092) discloses a lighting system for a display (Figure 3) comprising ... a reflective layer-combination of the fluorescent pigment layer 50 optically in contact with the reflecting layer 30- herein after referred as the reflecting layer 50, 30 (Figure 3, column 3, lines 5-7 and 11-20) ... .” In response to Applicants' arguments filed on June 8, 2005, the Office Action further states that “[t]he fluorescent pigment layer 50 has been broadly interrelated as a

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coating when the layer is in optical contact with the reflection layer 30 (Chen).” Applicants respectfully disagree with this characterization of the disclosure of Chen.

Applicants respectfully submit that there is no teaching or suggestion in Chen that the “fluorescent pigment layer 50” is a “coating.” In contrast, Chen states that the “fluorescent pigment layer 50 is interposed between the light conductive plate 10 and the light reflection layer 30” (column 2, line 67 – column 3, line 1). See also Fig. 3. Thus, the disclosure of Chen suggests that the “fluorescent pigment layer 50” is a separate layer, rather than a coating. That is, the “light reflection layer 30” and the “fluorescent pigment layer 50” are two separate components of the device described in Chen, as opposed to a “phosphorescent coated surface” such as that recited in claim 1. Moreover, Chen does not teach or suggest a single reflective layer having a “phosphorescent coated surface” that both (1) reflects the invisible light and (2) converts the invisible light into visible light, as required by claim 1. In contrast, Chen discloses a separate “fluorescent pigment layer 50” that “converts the wave length of incident exciting light emitted by the luminescent crystal” (Chen, column 3, lines 2-3). The light passing through the “fluorescent pigment layer 50” of Chen is then reflected by the “light reflection layer 30.” There is no teaching or suggestion in Chen to provide a single reflection layer that includes a phosphorescent surface that both reflects and converts invisible light to visible light.

In further support of Applicants position are passages in Chen distinguishing his device over prior devices by stating that:

“The important differences are enumerated as follows:

1. The main structural design is different . According to the present invention, the fluorescent pigment layer is formed under the light conductive plate for much better brightness while said layer is formed on the light conductive plate.
2. According to the present invention ...directly printing fluorescent pigment powder in mesh configurations are utilized by the known devices which must form the fluorescent pigment layer on the light conductive plate.

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...

In conclusion, the outstanding features of the LED planar light source according to the present invention are ..., the fluorescent pigment layer provided beneath the light conductive plate.

Chen, Col. 3, lines 53- Col. 4, line 17. Accordingly, Chen teaches that it is not beneficial to use a single layer and in fact distinguishes his device from those that do use a single layer. Thus, Chen may not properly be interpreted broadly as teaching, disclosing, or suggesting "a reflective layer having phosphorescent coatings in a substrate" as included in the combination of elements of claim 1.

As an alternative to the broad characterization of Chen's "fluorescent pigment layer 50," The Office Action further states in response to Applicants' arguments filed on June 8, 2005 that [i]t would have been obvious to one of ordinary skill in the art at the time of the invention to make the fluorescent pigment layer integral with the reflective layer, since it has been held that forming in one piece an article which has formerly been formed in two pieces and put together is merely a matter obvious engineering choice, and involves only routine skill in the art." Applicants respectfully disagree. Applicants note that the omission of an element (e.g., separate layers for converting and reflecting light) and retention of its function is an indicia of unobviousness. *In re Edge*, 359 F.2d 896, 149 U.S.P.Q. 556 (C.C.P.A. 1966). See also Manual of Patent Examining Procedure § 2144.04(II)(B). Here Applicants have effectively removed an element from Chen and maintained its function while doing so in a manner that is contrary to the teachings of Chen.

As to the second reason cited above, there is no suggestion or motivation to modify Chen or to otherwise combine the teachings of Chen and Baur et al. to arrive at the subject matter of claim 1 because Chen teaches away from the subject matter of claim 1 as well as a combination with the teachings of Baur et al. More specifically, Chen teaches away from a single reflective and light converting layer because of the inherent disadvantages of using single layers described in Chen. For example, Chen distinguishes his device over prior devices by stating that:

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"The important differences are enumerated as follows:

1. The main structural design is different . According to the present invention, the fluorescent pigment layer is formed under the light conductive plate for much better brightness while said layer is formed on the light conductive plate.
2. According to the present invention ...directly printing fluorescent pigment powder in mesh configurations are utilized by the known devices which must form the fluorescent pigment layer on the light conductive plate.

...

In conclusion, the outstanding features of the LED planar light source according to the present invention are ..., the fluorescent pigment layer provided beneath the light conductive plate.

Chen, Col. 3, lines 53- Col. 4, line 17. Accordingly, Chen teaches that it is not beneficial to use a single layer and in fact distinguishes his device from those that do use a single layer. Thus, Chen can not be said to provide any motivation for modification to somehow arrive at the subject matter of claim including the single reflective and converting layer. Furthermore, even if Baur et al. could be somehow be generally cited as disclosing a phosphorescent coating combinable as part of a single layer in a lighting system regardless of the function of the single layer (e.g., reflective, non-reflective) as suggested in the Office Action, Chen teaches away from such a combination. As such, one of ordinary skill in the art would not have been motivated to combine the lighting system of Chen with the phosphorescent layer of Baur et al. to somehow arrive at the subject matter of claim 17.

Thus, the combined teachings of Chen and Baur et al. are not sufficient to render the subject matter of claim 1 *prima facie* obvious because the cited combination fails to teach, disclose, or suggest all of the elements of claim 1 as combined therein, and because there is no suggestion or motivation to modify Chen or to otherwise combine the teachings of Chen and Baur et al. to arrive at the subject matter of claim 1. Any suggestion or motivation to combine or otherwise modify the teachings of Chen and Baur et al. has been taken from Applicants' own

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disclosure using hindsight, which is improper. Accordingly, Applicants respectfully request that the rejection of claim 1 under 35 U.S.C. § 103(a) be withdrawn. Additionally, claims 2, 4, and 6-9 depend from claim 1 and are thus patentable over the cited combination of references for at least the same reasons as claim 1, and Applicants further request that the rejection of claims 2, 4, and 6-9 under 35 U.S.C. § 103(a) be withdrawn as well.

**b. Rejection of claim 3 based on Chen in view of Baur et al. and further in view of Vossler**

In section 4 of the Office Action, claims 3 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Chen in view of Baur et al. and further in view of Vossler (U.S. Patent No. 5,856,819). Claim 3 depends from claim 1. As stated above, the subject matter of claim 1 is not taught, disclosed, or suggested by any proper combination of Chen and Baur et al. As to Vossler, it fails to make up for any of the above-mentioned deficiencies in the combination of Chen in view of Baur et al. with regard to claim 1. Thus, claim 3 is patentable over the cited combination of Chen in view of Baur et al. and further in view of Vossler for at least the same reasons as claim 1. Accordingly, Applicants request that the rejection of claim 3 under 35 U.S.C. § 103(a) be withdrawn.

**c. Rejection of claims 10 and 13-16 based on Chen in view of Vossler and further in view of Yamashita**

In section 5 of the Office Action, claims 10-16 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Chen in view of Vossler and further in view of Yamashita (U.S. Patent No. 4,599,537).

With regard to claim 10, Applicants respectfully submit that not all of the claim limitations are taught by any proper combination of Chen, Vossler, and Yamashita. In particular, claim 10 recites the steps of “reflecting the infrared light from the light source by the reflective layer” and “converting the infrared light into visible light visible to the human eye by the reflective layer.” The cited combination of Chen in view of Vossler and further in view of Yamashita fails to teach, disclose, or suggest “reflecting the infrared light from the light source

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by the reflective layer” and “converting the infrared light into visible light visible to the human eye by the reflective layer” as included in the combination of steps of claim 10.

The Office Action cites the “reflective layer 50, 30” of Chen as being a reflective layer as recited by Applicants in claim 10. Applicants respectfully disagree with this rejection of claim 10 for many of the same reasons as clearly explained above with respect to claim 1. These arguments are equally applicable to the rejection of claim 10 because Vossler and Yamashita fail to make up for any of the deficiencies in the Chen reference regarding the lack of a teaching or suggestion in Chen to provide a single reflection layer that both reflects and converts infrared light to visible light. Accordingly, Applicants submit that claim 10 is patentable over the cited combination of references and respectfully request that the rejection of claim 10 under 35 U.S.C. § 103(a) be withdrawn. Additionally, claims 13-16 depend from claim 10 and are thus patentable over the cited combination of references for at least the same reasons as claim 10, and Applicants further request that the rejection of claims 13-16 under 35 U.S.C. § 103(a) be withdrawn as well.

**d. Rejection of claim 11 based on Chen in view of Vossler and further in view of Yamashita**

In section 6 of the Office Action, claim 11 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Chen in view of Vossler and further in view of Yamashita. Claim 11 depends from claim 10. As stated above, the subject matter of claim 10 is not taught, disclosed, or suggested by any proper combination of Chen, Vossler, and Yamashita. Thus, claim 11 is patentable over the cited combination of Chen in view of Vossler and further in view of Yamashita for at least the same reasons as claim 10. Accordingly, Applicants request that the rejection of claim 11 under 35 U.S.C. § 103(a) be withdrawn.

**e. Rejection of claim 12 based on Chen in view of Vossler and further in view of Lueder**

In section 7 of the Office Action, claim 12 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Chen in view of Vossler and further in view of Lueder (U.S. Patent No. 6,559,918). Claim 12 depends from claim 10. As stated above, the subject matter of claim 10 is

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not taught, disclosed, or suggested by any proper combination of Chen, Vossler, and Yamashita. As to Lueder, it fails to make up for any of the above-mentioned deficiencies in the combination of Chen in view of Vossler and further in view of Yamashita with regard to claim 10. Thus, claim 12 is patentable over the cited combination of Chen in view of Vossler and further in view of Lueder for at least the same reasons as claim 10. Accordingly, Applicants request that the rejection of claim 12 under 35 U.S.C. § 103(a) be withdrawn.

**f. Rejection of claims 17-19, 22, and 24-27 based on Chen in view of Baur et al. and further in view of Kim et al.**

In section 8 of the Office Action, the Examiner rejected claims 17-19, 22, and 24-27 under 35 U.S.C. § 103(a) as being unpatentable over Chen in view of Baur et al. and further in view of Kim et al. (U.S. Patent No. 6,204,902). With regard to claim 17, Applicants respectfully submit that not all of the claim limitations are taught by any proper combination of Chen, Baur et al., and Kim et al. In particular, claim 17 recites "a light converter, converting the invisible light to light having a wavelength visible to the human eye, the light converter having metallized coatings on a substrate to reflect visible and invisible light, and the light converter having phosphorescent coatings on the substrate" The cited combination of Chen in view of Baur et al. and further in view of Kim et al. fails to teach, disclose, or suggest "a light converter, converting the invisible light to light having a wavelength visible to the human eye, the light converter having metallized coatings on a substrate to reflect visible and invisible light, and the light converter having phosphorescent coatings on the substrate" as included in the combination of elements of claim 17.

The Office Action cites the "combination of the reflective layer 30 and the combination of the fluorescent pigment layer 50" of Chen as being a light converter as recited by Applicants in claim 17. Applicants respectfully disagree with this rejection of claim 17 for many of the same reasons as clearly explained above with respect to claim 1. These arguments are equally applicable to the rejection of claim 17 because Baur et al. and Yamashita fail to make up for any of the deficiencies in the Chen reference regarding the lack of a teaching or suggestion in Chen to

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provide a single light converter that both reflects and converts invisible light to visible light. Accordingly, Applicants submit that claim 17 is patentable over the cited combination of references and respectfully request that the rejection of claim 17 under 35 U.S.C. § 103(a) be withdrawn. Additionally, claims 18-19, 22, and 24-27 depend from claim 17 and are thus patentable over the cited combination of references for at least the same reasons as claim 17, and Applicants further request that the rejection of claims 18-19, 22, and 24-27 under 35 U.S.C. § 103(a) be withdrawn as well.

### Conclusion

Applicant believes that the present application is now in condition for allowance. Favorable reconsideration of the application as amended is respectfully requested.

The Examiner is invited to contact the undersigned by telephone if it is felt that a telephone interview would advance the prosecution of the present application.

The Commissioner is hereby authorized to charge any additional fees which may be required regarding this application under 37 C.F.R. §§ 1.16-1.17, or credit any overpayment, to Deposit Account No. 06-1447. Should no proper payment be enclosed herewith, as by a check being in the wrong amount, unsigned, post-dated, otherwise improper or informal or even entirely missing, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 06-1447. If any extensions of time are needed for timely acceptance of papers submitted herewith, Applicant hereby petitions for such extension under 37 C.F.R. §1.136 and authorizes payment of any such extensions fees to Deposit Account No. 06-1447.



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Please direct all correspondence to the undersigned attorney or agent at the address indicated below.

Respectfully submitted,

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